agricultural situation

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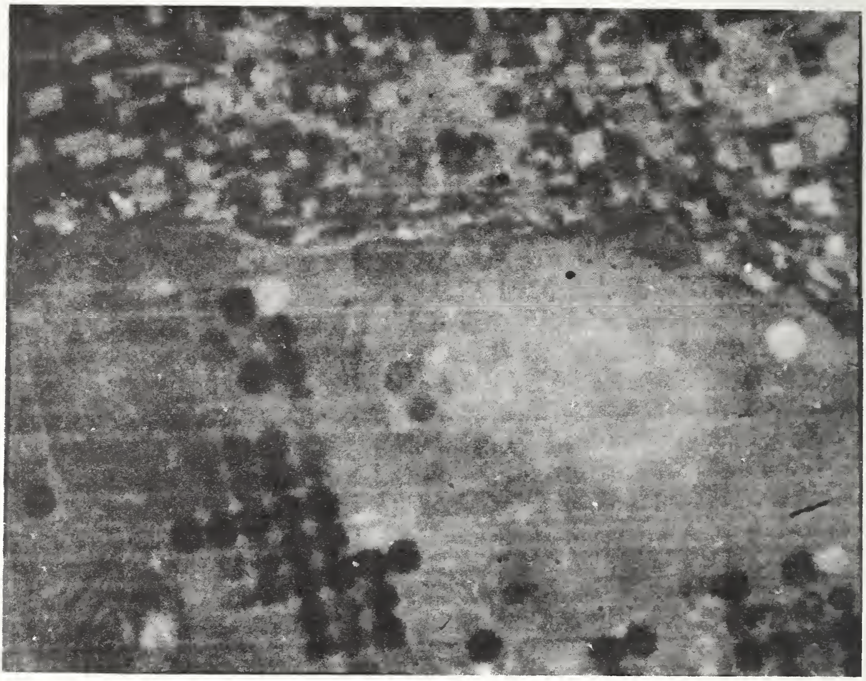
SPACE AGE STATISTICS



SPACE AGE STATISTICS

The giant ERTS photos spill out over the regulation government desk. At first glance they seem to be merely overexposed color photos but on closer scrutiny it's apparent they show only tones of red, green, and black.

Donald Von Steen, in charge of a group of remote sensing experts in SRS' Research Division, points out a series of red dots in the bottom portion of one photo.

Surrounded by a vast expanse of green, these circles would seem to be barren fields in the midst of otherwise verdant areas. Actually they are just the opposite.

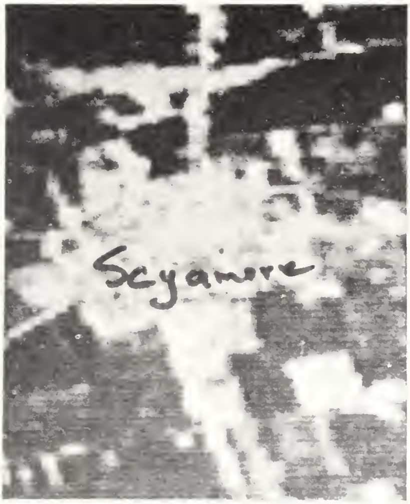
Von Steen explains that the ERTS imagery is based on a principle of energy radiation. Since all objects have different physical and chemical properties, they tend to radiate different amounts of energy in the form of electromagnetic waves.

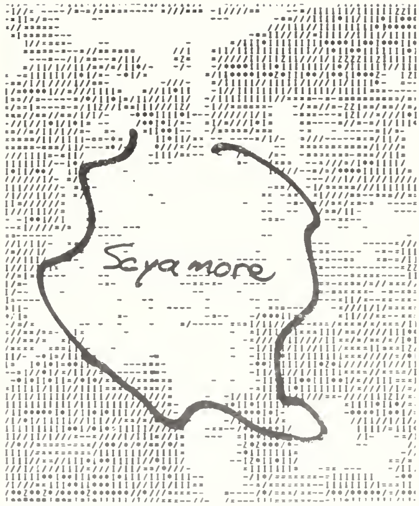
Colors on the ERTS photo images don't correspond to the colors seen by the naked eye. Rather, areas of lush vegetation show up in tones of red on the satellite photos. Barren lands or those with only scant vegetation appear green.

The tiny red dots really depict an abundant agriculture resulting from pivot irrigation in this otherwise dry area of southwestern Kansas.

Von Steen heads up the SRS research effort involving the data transmitted by ERTS I (the first Earth Resources Technology Satellite) launched in July 1972. ERTS I is packed with all kinds of electronic sensors which transmit back to Earth various types of measurement and mapping data. SRS is only one of many government and private groups working with these data.

"Our No. 1 goal in SRS is to see whether we can identify crop species for all size fields by means of space imagery," Von Steen explains. "If we can, then we'll try to develop





The city of Sycamore, Ill. and its rural environs show up clearly in these two photos. The image (above left) is a display of the ERTS imagery which is similar to a t.v. picture while the other (above right) is a computer map. Remote sensing experts use both in studying land use patterns. (Opposite page) The circular pattern of pivot irrigation fields in southwestern Kansas is easily visible in this enlargement of an image made by ERTS. The greyish area in the top center is Garden City, Kans.

methods of estimating crop acreage from satellites."

Each of the photo images taken by ERTS I covers an area of 100 by 100 nautical miles—or 13,000 square land miles.

In standard 8 by 10 inch size, the images on the photos are too small to be meaningful for visual interpretation. So SRS blows the pictures up into giant 3 by 3 foot sheets.

"At this first stage in our project, we're trying to locate on the satellite photographs four sites for which we have extensive 'ground truth' data," Von Steen explains.

"Last year we selected areas in Idaho, Kansas, Missouri, and South Dakota and had our enumerators check very carefully on individual crop acreages in the June Enumerative Survey and in followup monthly surveys in August, September, and October."

"The sites chosen contain a good cross section of the crops we're interested in identifying—wheat, various small grains, alfalfa, cotton, corn, grain sorghum, potatoes, sugarbeets, and field beans, to name just a few."

"From our ground information we know a great deal about where crops are grown in these areas. Now we're seeing if identifying these crops is possible from space imagery—and if it is, how close the space observations will be to our ground observations," Von Steen recounts.

For actual crop identification SRS will not work with the photographs alone but also with data transmitted by ERTS and stored on magnetic tapes.

Each of the various light reflective intensities sensed by ERTS I will be coded for computers. When these codes and the ERTS data are run through a computer, it will print out a different sort of a map where all the images are shown in the code numbers and letters.

Since each crop has its own light-refection capacity, it should be possible to detect plantings of various crops on the computer print-

outs. That's what Von Steen and his cohorts optimistically expect.

"But even if we show that it's possible to identify various crops from space imagery—and even if we do learn how to make acreage estimates from space, remote sensing may never replace our present estimating program here in the United States unless accuracy and costs are favorable," Von Steen is careful to point out.

"Right now SRS' estimating program for major crops has a sampling error of no more than 3 percent. It's doubtful if classification techniques are that close with the present sensors from space. However, by combining space imagery with our present system it may be possible to improve or provide information that is now unavailable—for example, current crop estimates for small areas."

"Where space imagery might help us out is in selecting the area samples for our special surveys," continues Von Steen. "Presently we're using airphotos taken from high flying aircraft for this purpose. But if it turns out we can use space imagery just as well, we might switch over."

The ERTS project isn't getting top priority treatment with SRS since many of the agency requirements involve types of information that are not available from the sensors or else the agency already has an extensive and effective estimating program. Yet a good many foreign nations have their hopes for a reliable estimating program pinned largely on ERTS.

ERTS sensors do not receive or transmit data on a country unless its government specifically requests our government to do so. Currently ERTS is collecting data for over 40 countries. Von Steen points out that for those nations with only a rudimentary estimating program, ERTS I may well mean a big increase in accuracy.

WATCH WORK

Though SRS is still getting its feet wet with space imagery, it's an old hand at interpreting data gathered by aircraft.

One of SRS' more sophisticated remote sensing projects in recent years was the Corn Blight Watch conducted during 1971.

In 1970 southern corn leaf blight, a fungus disease, had destroyed about 15 percent of the U.S. corn crop. In some areas of the country the effects of blight were magnified by severe drought. It was entirely possible that corn blight would be a major problem again in 1971.

During 1971 aircraft of the National Aeronautics and Space Administration and the University of Michigan repetitively photographed about 45,000 square miles of the Corn Belt, using special infrared and color film.

Healthy crops, in the infrared, appeared much brighter than diseased crops.

The remote-sensed data were then checked for accuracy against ground truth data collected in 210 randomly selected sites in Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, and Ohio.

The results of the Corn Blight Watch indicated that the spread of a disease could be successfully monitored using remote sensing from high-flying aircraft.

The repeat flyovers allowed SRS' statisticians to check on the direction and rate of spread of the disease. This sort of information, coupled with what other scientists learn about the connection between plant disease and weather, may someday lead to "disease forecasts" much like our present day weather forecasts.

Then, just as persons do who are in the path of a tornado or a hailstorm, farmers in the path of a disease could take the necessary precautions to prevent damage to crops.

SPOTLIGHT ON HAWAII

"Unique location, unique weather, unique rainfall patterns, unique land ownership patterns. . . all in a State that contains slightly more land than Rhode Island and Connecticut combined," says Paul P. Wallrabenstein, who is SRS's statistician in charge of Honolulu, Hawaii.

"Naturally, the Aloha State's mid-Pacific agriculture differs quite a bit from the other 49 States," he continues.

Island rainfall, for example, varies from 400 inches per year in some areas to practically none in others.

Roughly half the State's 4.1 million acres is agricultural: Cropland amounts to 380,000 acres; grazing land and other land account for 1.7 million acres.

"But don't let the comparison between cropland and other lands fool you. Crops bring in the major portion of cash receipts from agriculture," notes Wallrabenstein.

In 1971 Hawaiian farmers earned $221 million in cash receipts from agriculture. Crops accounted for over 80 percent of the total, with sugar and pineapples responsible for most of that.

Sugarcane and pineapples grow mostly on large, corporate-owned plantations. Special machines have been developed for harvesting both crops—making them among the world's most highly mechanized agricultural enterprises.

Sugar leads the Hawaiian agricultural commodity parade by many lengths. In 1971 sugarcane grew on 237,000 acres, roughly 62 percent of the State's cropland, and earned $116 million, over half the cash receipts from farming.

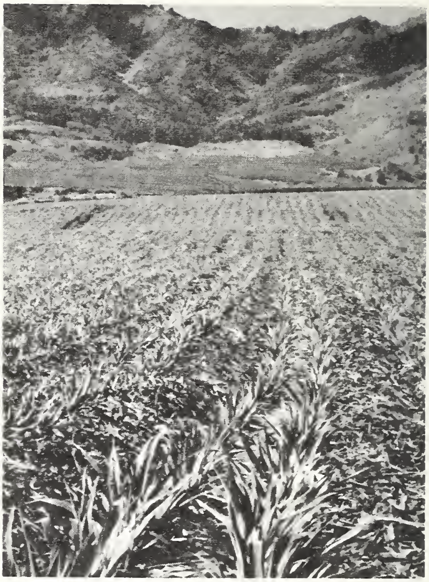
The crop takes 2 years to mature, and the 1971 harvest totaled almost 11 million tons of unprocessed cane. Over 40 percent of production came from the island of Hawaii, called the "Big" island locally because it contains around two-thirds of the State's land area.

Sugarcane is processed into raw sugar in Hawaii and the raw sugar is then shipped to the Mainland for final processing. Hawaii accounts for around one-fifth of U.S. sugar production, both from cane and beets.

Pineapple grows on 64,000 acres, roughly 15 percent of the cropland. Most of the pineapples are in Maui County, which includes the islands of Maui, Molokai, and Lanai. The entire island of Lanai is owned by a pineapple company.

In 1971 Hawaiians marketed 901,000 tons of pineapple (fresh equivalent), worth about $38.5 million. The largest part of the crop was canned and shipped to the Mainland.

"The rest of Hawaii's crops are grown mostly on small farms," continues Wallrabenstein, "and there are many of them. Last census we had 3,900 farms—2,100 of which



On Maui, Hawaii's second largest island, vegetables (above) grow by the sea. On Oahu (right) pineapples mature.

were under 10 acres; 1,200 between 10 and 49 acres; and 400 between 50 and 99 acres."

Outside of the two main crops, Hawaiian crops are extremely diverse. For example, only Hawaii of all the States produces coffee. In 1971 some 3,400 acres were devoted to coffee production of 4.0 million pounds, worth over $1.3 million.

Macadamia nuts grow on another 9,100 acres. In 1971 Hawaii produced 11.4 million pounds of this cash crop, worth almost $2.5 million.

In addition, the State produces most of the vegetables grown on the Mainland, plus exotic ones, such as burdock, daikon, dasheens, ginger root, and lotus root. In 1971 Hawaii grew vegetables and melons, valued at almost $49 million, on 2,900 acres of land.

These, plus fruits such as bananas, guavas, passion fruit, and papayas, are produced year-round, and farmers regulate their plantings to the demands of the only large local market, Honolulu.

Livestock production is generally on a large scale. In fact, the Nation's second largest individually owned cattle ranch, about 250,000 acres, is on the "Big" island, and another island, Niihau is one giant cattle and sheep ranch.

Cattle ranchers produce a little over half the State's beef and veal needs while local hog producers usually supply slightly more than one-third of local pork consumption.

As for poultry, the State's poultrymen produce almost all the eggs but only about one-fifth of the chicken meat used in Hawaii.

In 1971 feedlot operators sold 35,000 cattle, which were fed on imported feed. Fed cattle sales accounted for $10.3 million of the State's total $15.4 million in cattle sales.

Hawaiian farmers sold 66,000 hogs for over $4.7 million. Over 42,000 head came from the island of Oahu, third largest of the islands, which contains Honolulu and Pearl Harbor.

The egg industry is also centered on Oahu, which had 704,000 of the State's 945,000 layers as of December 1, 1971. Oahu also accounted for 1.7 out of the 1.8 million broilers produced in Hawaii during 1971 (latest available data).

DEBUGGING WITHOUT DESTROYING

Under present Environmental Protection Agency (EPA) rulings, farm use of DDT was banned as of December 31, 1972.

Other organochlorine insecticides are also coming under close EPA scrutiny. In this group are aldrin and toxaphene, which along with DDT constituted the "big three" in farm insecticide use when the last study was made in 1966.

As a skeptical eye is cast on insecticides which the farmer has long taken for granted, the need to provide safe, economic substitutes is growing.

The long residual life associated with organochlorines—the chief insecticides in 1966—has resulted in a build-up of these materials in the environment. The organophosphates and carbamates developed more recently degrade rather quickly and do not pose a long-term residue problem. However, many are toxic to humans and other warm-blooded animals and have caused some poisonings of those directly in contact with them.

Waiting in the wings—or, rather, in the test tubes of pesticide researchers—is a series of experimental and innovative approaches to insect control.

They range from conventional to far-out, and they have a common goal: managing insect pest populations without harming or damaging the environment.

Few of these are in widespread use yet, but they are promising alternatives to the increasing numbers of insecticides being banned or restricted.

Following the lead of drug researchers, insecticide research and development is now experimenting with biodynamics.

This method relates pesticides to the physiological processes of insects, piecing together a clear picture of how and why they work.

The researcher can then design pesticides to do specific tasks, using the insect's own chemistry as the basis for control and delivering the pesticide directly to the insect part where it can function most effectively.

Researchers say this method may well score its first triumph in the development of agents that interfere with a pest's metabolism. They may, for example, reduce an insect's impulse to feed, causing starvation. Agents may also be used to advance or delay pupation, making the pupae more vulnerable to predators and disease organisms.

Disruption of an insect's hormone balance is also being explored. Insects require two hormones—the so-called juvenile hormone and ecdyson—to pass from the larval stage to full maturity as a butterfly, fly, or beetle. Application of the hormones at the right time could produce premature pupation or prevent metamorphosis.

Both hormones have been synthesized, but the ecdyson structure is complicated and may never be commercially producible.

More conventional research is focusing on the microbial and viral pathogen approach.

Availability of materials to work with is the limiting factor in using pathogens in control programs. There are also problems of registration of labels and quality.

The success of insect sterilization in controlling the screwworm is prompting use of this approach on other insects, including the pink

cotton bollworm in Nevada and the coddling moth in Washington.

Meanwhile, the USDA has been looking into the possibility that farmers may be using more insecticides than they need to. A nationwide pest management program has been developed for integrating all known methods of pest control. Initially, the focus has been on using pesticides only when estimated damage from pest populations exceeds the cost of control.

Fewer, and more effective, applications are being stressed for crops like cotton, sweet peppers, Irish potatoes, alfalfa, sweet corn, apples, lettuce, and tobacco.

As research develops safer, less toxic products and as experimental methods come into wider use, the impact of restricted insecticide use on the farmer will be lessened.

BUGGING SEX SIGNALS

All because of an electrical device with the strange sounding name of electroantennogram, the intimate details of insects' sex lives are being bared by entomologists.

The scientists are using the electroantennogram to learn which sex attractants can be used to entrap insect species possessing antennae.

The electroantennogram is a relatively simple apparatus constructed from an antenna snipped from a male insect and then stuck in a piece of wax set in a salt solution. The antenna is wired to an electrode which can signal reactions to various chemical sex attractants.

Entomologists waft chemically laden air over the antenna—and when a test chemical proves alluring, there's a change in polarization in the antenna which can be detected by the electrode and transformed into a visual signal on an oscilloscope.

Alas, poor bugs, your secret love's no secret any more.

IF CHLORDANE WERE BANNED . . . .

Without chlordane, farmers' production costs would have been $1.84 million higher in 1971, according to a recently released report by the Economic Research Service. Of that amount, $1.56 million would have gone for alternative soil insecticides, and $0.28 million would have been in yield losses.

The ERS study is part of a continuing USDA pesticide review program.

Corn producers, chlordane's chief users on the farm, treated 208,000 acres with chlordane in 1971; without it, they would have incurred added costs of $1.4 million for chlordane substitutes. For potato growers, additional costs would have been $108,000 on 38,000 acres.

Tomato and tobacco producers would have had to spend an added $12,000 and $14,000, respectively, for alternative insecticides. But for cotton producers, the added costs would have been negligible.

In addition to increased expenses, yield losses would have been suffered by producers of those crops for which there either is no substitute for chlordane, or a less effective one.

For strawberries and certain vegetables, yield losses would have totaled $190,000; additional costs would have been $14,000.

Citrus growers, who rely on chlordane to control termites in new citrus plantings, would have incurred $93,000 in yield losses resulting from damaged trees and delayed fruit bearing.

In 1971, farmers applied about 601,000 pounds of chlordane. If it were discontinued, the chief replacements would be carbaryl and diazinon, used primarily on corn. Use of these two insecticides could be expected to increase by 505,000 and 434,000 pounds per year, respectively.

Breakthrough!

STERILITY CONTROL

"When I first proposed sterilizing insects back in 1937, my idea was greeted with skepticism," remembers Edward F. Knipling, now working at USDA's Agricultural Research Service in Beltsville, Md.

"We were working on screwworm control at Menard, Tex., and our controls included phenolic dips, which sometimes killed the cattle along with the screwworms."

But Knipling realized that only complete or near complete extermination could satisfactorily control this range pest, because it attacked wild as well as domestic animals.

Before World War II, Knipling worked out a theory that an insect species could be eradicated if the population were infiltrated with enough sterile males and if releasing sterile males continued for several successive generations.

After the war, Kinipling returned to work on insects attacking livestock and began developing plans to investigate the sterilization theory. The screwworm was a good candidate because its numbers were not high in comparison with other insects, it inhabited only limited areas during the winter months, and it did immense damage to livestock and game animals.

Knipling discussed plans with Dr. R. C. Bushland, who with a colleague had developed an artificial method of rearing the worms. Bushland, using Army medical center facilities near San Antonio, Tex., determined the dosages of X-rays necessary to sterilize the screwworm flies and at what stage to treat the insect.

A 1953 test on Sanibel, a small island off Florida, gave encouraging results, but the test was inconclusive because insects from the mainland reestablished the screwworm population. However, in 1954 Knipling's associates reared and released 170,000 sterile screwworm flies per week on the 170-square-mile island of Curacao for 4 months. The insect became extinct on the island, and since it was about 50 miles from the nearest land, a population from elsewhere could not establish itself.

In 1957-58, the U.S. Department of Agriculture and the Florida livestock industry undertook a major effort to rid the U.S. Southeast of the screwworm. More than 2-3/4 billion sterile screwworms were released over Florida, and the bug was extinct there within 18 months.

There were two screwworm cases last year in Florida, resulting from movements of animals from the Southwest. So in 1972 USDA dropped about 40 million sterile screwworm flies in Florida.

Presently, Knipling is interested in advancing his theories on sterilization methods that might be used against vertebrate pests. One of the most important targets is rats.

AN OLD CROP COMES OF AGE

Any native American crop that takes 373 years to come into its own has got to be called a late bloomer on the agricultural scene.

So it is with sunflowers. Grown by Indians in North Carolina for food before 1600 and raised by New England colonists for hair oil as early as 1615, sunflowers have had a long but relatively uneventful history in the United States.

Down through the decades most sunflowers that served more than a decorative function in U.S. gardens were raised for the confectionery and bird seed markets, rarely for oil.

But while we in the United States weren't successful in getting yields of oil high enough to make sunflowers a profitable crop, researchers in the Soviet Union were.

The USSR desperately needed to find an oilseed crop which would grow successfully in a climate too cold for the traditional world leaders—soybeans, peanuts, and cottonseed. They hit upon, you guessed it, the sunflower—but they took the sunflowers we had improved through many years of breeding and achieved a breakthrough which approximately doubled the oil content of the native American plant to where it ranged between 40 and 45 percent. Soybeans are only about 20 percent oil.

In 1966 we imported some of the high-oil Soviet sunflowers into the United States, and a year later commercial production for oil uses began on some 93,000 acres in the Red River Valley of Minnesota and North Dakota.

So much for the past. More important is the present and the future for oilseed sunflowers in the United States.

At present best estimates of U.S. sunflower plantings in 1972 put the total somewhere near 850,000 acres—the largest ever. And for the first time in history plantings of oil varieties topped those for confectionery and seed purposes—the ratio being about 3 to 1.

Minnesota and North Dakota usually plant about 85 percent of the Nation's crop—although sunflowers are getting more and more

popular on the northern fringes of the Corn Belt where corn and soybeans historically have not performed exceptionally well.

In addition, oilseed sunflowers are also being grown in several Cotton Belt States where excess capacity in cotton oil mills is an inducement to provide oilseeds for crushing.

Of course, the ultimate test for high-oil sunflowers will be how well their costs and returns stack up against those for competing crops.

In the Red River Valley area production costs, based on estimates developed by the North Dakota Agricultural Extension Service, come to about $23 to obtain present average yields of around 1,000 pounds an acre.

A recent study by the Economic Research Service indicates that at recent sunflowerseed price levels of 4 cents a pound, 1,000-pound-per-acre yields would make crop returns superior to those for flaxseed and equal to those for wheat not produced under allotment.

However, sunflower yields would have to rise to around 1,100 pounds to compete with soybeans and barley and to 1,900 to 2,000 pounds to compete with allotment wheat.

(The higher yields apparently are achievable with existing seed varieties and technologies. Some farmers in North Dakota already report sunflower yields of 2,000 pounds an acre and over and several Red River Valley farmers claim sunflowers are their No. 1 cash crop.)

In the Cotton Belt, production costs are estimated by ERS to total about $40 to obtain present average yields of about 1,250 pounds an acre.

Compared with other major crops in the Cotton Belt area, if sunflowerseed sells for 4 cents a pound, per acre sunflower yields would have to be about 1,100 to 1,600 pounds to compete with cotton produced without government payments; 1,200 to 1,600 pounds to compete with sorghum raised under the feed grain program; and 1,600 to 2,000 pounds to compete with soybeans and with corn produced under the feed grain program.

If sunflowerseed sells for 5 cents a pound, correspondingly lower yields would make it competitive.

(Again, 2,000 pound yields have already been obtained in southern States.)

The development of new sunflower varieties with higher oil content, higher yield, and increased disease resistance will improve sunflowers' competitive position vis-a-

SUNFLOWER STATISTICS

Sunflower estimates, though not in the federal estimating program, are made twice yearly by SRS' State Statistical offices in North Dakota and Minnesota. Funds for the necessary surveys are provided by State Cooperators.

The first report in the growing season is timed to coincide with the SRS July Crop Report. Estimates are based on response from growers to mailed inquiries about planted and prospective acreage, which are compared with data of the previous year.

Firms contracting sunflower acreage also are asked to furnish data on the seed handled from the prior crop and the acreage under contract during the current year.

A mid-January report from the two State offices is based on a yearend survey of the acreage planted, yields harvested—plus separate estimates of prices and values of both oil and nonoil sunflower crops.

Sunflowers have been reported on regularly by the two States since 1964.

vis the major crops in not only the Red River Valley and Cotton Belt but also in other U.S. farming areas.

ERS research suggests there would be ready markets for oilseed sunflowers were they to catch on with U.S. farmers.

The U.S. market for edible oils has been growing at nearly 3 percent a year over the past decade to a total of 11.3 billion pounds in 1971. Right now soybeans dominate that market with a share of 53 percent. But pit sunflower oil against the leader and the late bloomer would seem to have at least two big advantages:

—As a cooking medium, sunflower oil gives excellent performance and doesn't develop off-flavors after repeated use. Cooking oils are the fastest growing segment of the Nation's edible oil industry—mainly because of the rapid rise in fast food outlets specializing in fried foods and the growth of fried snack foods.

—Sunflower oil has a much higher ratio of polyunsaturated fatty acids to saturated fatty acids than soybean oil—which may give it an edge with health-conscious Americans in the salad oil and margarine market.

HIGH OIL HYBRIDS:

Will the 1970's someday be recalled as the decade when the sunflower industry flowered? Quite obviously it's too soon to tell. However, the commercial release this year of several hybrid seed varieties may be the start of something big.

Plant breeders have been experimenting with hybrid varieties for quite a while, but these hybrids have not been grown commercially in the United States because of high labor costs involved in producing the seed and the difficulty in getting seed that would be 100 percent hybrid.

However, with the recent discovery of cytoplasmic male sterility by a French researcher and fertility restoration by a USDA plant breeder, it's now possible to produce hybrid sunflowerseed in much the same way that hybrid corn and sorghum are produced.

During 1972 some 300 to 500 acres in the United States were planted to the parents of several hybrid varieties in order to produce seed for commercial distribution this year. At least five seed companies are offering high oil sunflower hybrids to farmers this spring.

Hybrid sunflower varieties have at least three big pluses for farmers: higher yields, improved disease resistance, and more uniform development.

Yields of hybrids on test plots in Fargo, N. Dak., topped those for open pollinated varieties by an average of 18 percent during 1969, 1970, and 1971. And the best yielding hybrid topped the best yielding open pollinated type by more than 400 pounds per acre—or 24 percent.

Also in 1971 hybrids accounted for 20 out of 21 entries where yields exceeded 2,000 pounds an acre. Larger head size appears to account for at least part of the yield advantage.

Resistance to rust is another point in favor of the hybrids. As a rule the hybrids withstand this troublesome plant disease much better than open pollinated varieties.

And lastly there's the matter of uniform maturity. Unlike open pollinated types, every plant in a hybrid field has the same genetic background. Consequently all the plants tend to have fairly similar flowering times, height, head diameter, seed oil content, and rust resistance.

This uniformity of development means farmers can time their insecticide applications more effectively and also can achieve a more efficient harvest. With open pollinated sunflowers it's not unusual to see many green heads in fields where the majority of the plants are dry enough to combine.

ag Outlook

DIGESTED FROM OUTLOOK REPORTS OF THE ECONOMIC RESEARCH SERVICE
FORECASTS BASED ON INFORMATION AVAILABLE THROUGH FEBRUARY 1, 1973

FARM INCOME forecasters put this year's prospects at better than any other year but 1972. The value of farm marketings is slated to top the 1972 record as prices stay high and large output continues. So, despite some cutback in direct government payments, realized gross farm income may well surpass 1972's $66.4 billion.

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PRODUCTION EXPENDITURES are the fly in the ointment. They began to climb sharply in late 1972 and are rising steadily still. Experts see the total 1973 gain at least matching the $3.2 billion hike of last year when farmers paid out $47.2 billion for production goods and services. Higher production expenditures will leave 1973 realized net farm income lower than the all-time peak level of $19.2 billion set in 1972. (P.S.—Farm people made a record amount of money away from the farm, too, last year. Latest estimates put the nonfarm income of the farm population at $15.5 billion in 1972, up from $13.9 billion the year before.)

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FINANCIAL FACTS . . . Financially farmers are noticeably better off this year than last and prospects favor a continuation of this situation. Farm asset values, up 9% on January 1 from a year earlier, will probably keep climbing with real estate values providing the biggest push. However, the farm debt-to-asset ratio will, in all likelihood, resume its uptrend (interrupted in 1972 for the first time since 1957) as debts gain faster than asset values.

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INCREASED LOAN ACTIVITY seems probable as farmers up their investments in land, machinery, equipment, and other capital improvements . . . and as farmers attempt to meet higher production costs (including those incurred in farming the extra acres which will likely be put into production due to changes in farm programs). Additionally, farmers who plan to pay off by May 31 any CCC loans on grains stored on farms under the program will likely need financing, even if only for a short time. Most major lenders report that their loan funds are ample, however, and it's not expected that interest rates will move much above the present levels of 7½ to 8½%.

COTTON CUT . . . Upland acreage in 1973 may total a little over 13 million, nearly a million under plantings last year but about 2 million over the 1967-71 average. The cut reflects the smaller national base acreage allotment this year than last—10 million versus 11½ million, respectively.

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PRODUCTION MAY DIP, TOO . . . The 5% drop in upland acreage could limit 1973 output to 12½ million bales, assuming harvested yields average out to about a bale per acre. The season total would be about 1 million bales below 1972. Still supplies for 1973/74 may gain slightly because of the 5+-million-bale carryover expected this summer. Carryover in the summer of 1972 was a rather skimpy 3.4 million bales.

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EXPORT EXPECTATIONS . . . After a slow start, our cotton exports have picked up and may reach 4 million bales by the end of 1972/73. Exports last year totaled about 3½ million bales. Back of the bigger shipments are larger U.S. supplies, smaller stocks in competing countries abroad, and larger use in noncommunist countries.

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DOMESTIC MILL USE SLOW . . . Cotton use by U.S. mills in 1972/73 may fall to the lowest level since the late 1930's. Right now the year's total is pegged at less than 8 million bales, against 8.2 million last year. Tight supplies and high prices have combined to worsen cotton's position vis-a-vis manmade fibers. Cotton's share of the fiber market slipped to about a third of the estimated 11.6 billion pounds of fibers consumed by U.S. mills in calendar 1972, down from 37% the year before.

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WHEAT NOTES . . . Exports continue to dominate the 1972/73 wheat scene. Pegged to reach 1.15 billion bushels, they'll top the old mark set in 1965/66 by a third. Coupled with domestic needs, this would cut year-end stocks to around 440 million bushels, smallest since 1967. Most of this will be outside of the loan program or CCC ownership.

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WHEAT PRICES have soared four-fifths above their harvest lows. The $2.38 per bushel received by farmers in December was the highest for the month since 1947, and the season-average price is likely to hit $1.67, around a fourth over 1971/72's amount. The increase in the estimated winter wheat price is just over a fifth while spring wheat prices are expected to average nearly 30% higher.

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FUTURES FIGURES . . . Trading in commodity futures set volume and value records in 1972: 14.3 million contracts worth $181.3 billion were traded. Both figures topped the previous 1971 records, 11.8 million contracts worth $122.8 billion. Last year's leading commodities included—soybeans: 4.1 million contracts, up 31% from 1971; frozen pork bellies: 2.1 million contracts, up 21%; corn: 2.0 million contracts, down 6%; and live cattle: 1.4 million contracts, up 85%.

Statistical Barometer

Item	1971	1972	1973—latest available data	
Prices:				
All prices received by farmers (1967=100)	112	126	144	January
Crops (1967=100)	107	116	131	January
Livestock (1967=100)	116	133	153	January
All prices paid by farmers (1967=100)	120	127	134	January
Production items (1967=100)	115	122	132	January
Interest (1967=100)	138	149	165	January
Taxes (1967=100)	144	155	161	January
Wage rates (1967=100)	134	142	146	January
Family living items (1967=100)	119	127	129	January
Ratio[1] (1967=100)	94	99	107	January
Consumer price index, all items (1967=100)	121	[3]125		---
Food (1967=100)	118	[3]124		---
Farm Income:				
Volume of farm marketings (1967=100)	111	[3]111		---
Cash receipts from farm marketings ($bil.)	53.1	[3]58.5		---
Crops ($bil.)	22.6	[3]24.2		---
Livestock ($bil.)	30.5	[3]34.3		---
Realized gross farm income ($bil.)	60.1	[3]66.4		---
Production expenses ($bil.)	44.0	[3]47.2		---
Realized net farm income ($bil.)	16.1	[3]19.2		---
Income and Spending:				
Disposable personal income, total ($bil.)	744.4	[3,4]795.1		---
Expenditures for food ($bil.)	117.3	[3]124.6		---
Share of income spent for food (percent)	15.8	[3]15.7		---
Farm Food Market Basket:[2]				
Retail cost (1967=100)	116	121		---
Farm value (1967=100)	114	124		---
Farmer's share of retail cost (percent)	38	40		---
Agricultural Trade:				
Agricultural exports ($bil.)	7.7	9.4		---
Agricultural imports ($bil.)	5.8	6.5		---
Farm Production and Efficiency:				
Farm output, total (1967=100)	111	[5]112		---
Livestock (1967=100)	108	[5]109		---
Crops (1967=100)	112	[5]113		---
Cropland used for crops (1967=100)	99	[5]97		---
Crop production per acre (1967=100)	113	[5]116		---
Farm inputs, total (1967=100)	102	[5]103		---
Farm output per unit of input (1967=100)	109	[5]109		---
Farms and Farmland:				
Number of farms (thous.)	2,909	2,870	2,831	January
Land in farms (mil. acres)	1,097	1,093	1,089	January
Average size of farms (acres)	377	381	385	January

[1]Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates.
[2]Average quantities per family and single person households bought by wage and clerical workers, 1960-61, based on Bureau of Labor Statistics figures.
[3]Annual rate, preliminary.
[4]Estimated.
[5]Preliminary.

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